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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID	:	CP-RW-2018-02-21-01 Date: 23-01-18
Customer	:	Assistant Executive Engineer, Dasarahalli Sub division, BBMP, Bangalore.
Address	:	Dasarahalli Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at 1st, 2nd and 3rd cross Manjunatha nagara in ward no. 14 Bagalagunte.
Agency	:	Technical Manager West, KRIDL, Project Implementation Unit, No.280, 59th cross, 17th 'C' main road, 3rd 'Y' Block, Rajajinagar, Bangalore-560010
Customer Reference	:	BBMP/EE/DD/WO/84/2017-18
Source of Sample	:	Sample supplied by Agency
Date of Receipt	:	21-02-18
Sample ID No	:	2018-02-21-01/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	21-01-18

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	468	467
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	6.40	6.60
4	Average percentage	%	6.5	

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Lab ID : **CP-RW-2018-02-21-01**

Sample ID : **2018-02-21-01/01**

Date: 23-01-18

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 468

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	11	11	2.4	97.6	90-100
9.5	52	63	13.5	86.5	70-88
4.75	102	165	35.3	64.7	53-71
2.36	79	244	52.1	47.9	42-58
1.18	38	282	60.3	39.7	34-48
0.6	13	295	63.0	37.0	26-38
0.3	52	347	74.1	25.9	18-28
0.15	39	386	82.5	17.5	12-20
0.075	62	448	95.7	4.3	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 467

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	13	13	2.8	97.2	90-100
9.5	58	71	15.2	84.8	70-88
4.75	112	183	39.2	60.8	53-71
2.36	82	265	56.7	43.3	42-58
1.18	39	304	65.1	34.9	34-48
0.6	15	319	68.3	31.7	26-38
0.3	49	368	78.8	21.2	18-28
0.15	43	411	88.0	12.0	12-20
0.075	21	432	92.5	7.5	4-10

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TESTS RESULTS ON STABILITY OF MIX

Lab ID : **CP-RW-2018-02-12-08** **Date: 15-02-18**

Customer : Assistant Executive Engineer, Dasarahalli Sub division, BBMP, Bangalore.

Address : Dasarahalli Sub division, BBMP, Bangalore.

Project Name : Improvements to roads and drains at 1st, 2nd and 3rd cross Manjunatha nagara in ward no.14 Bagalagunte.

Agency : Technical Manager West, KRIDL, Project Implementation Unit, No.280, 59th cross, 17th 'C' main road, 3rd 'Y' Block, Rajajinagar, Bangalore-560010.

Customer Reference : BBMP/EE//DD/WO/84/2017-18

Source of Sample : Hot Mix Plant, Bangalore

Sample Condition : Satisfactory

Date of Receipt : 12-02-18

Sample ID No : 2018-02-12-08/01

Type of Mix : BC (Bituminous Concrete)

Date of test : 12-02-18

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	12.2	11.98	10KN(min)
2	Marshal flow at 60°C, mm	3.58	3.49	2-4
3	Percent air Voids	4.97	4.55	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.59	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	14.38	71.63	65-75
6	Density, g/cc	2.24	2.26	–

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2018-02-12-08** **Date: 15-02-18**
Customer	:	Assistant Executive Engineer, Dasarahalli Sub division, BBMP, Bangalore.
Address	:	Dasarahalli Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at 1st, 2nd and 3rd cross Manjunatha nagara in ward no.14 Bagalagunte.
Agency	:	Technical Manager West, KRIDL, Project Implementation Unit, No.280, 59th cross, 17th 'C' main road, 3rd 'Y' Block, Rajajinagar,
Customer Reference	:	BBMP/EE//DD/WO/84/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-02-18
Sample ID No	:	2018-02-12-08/01
Type of Mix	:	BC(Bitumenous Concrete)
Date of test	:	12-02-18

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	99.0	1.0	98.8	Minimum Retained Coating 95%
2	98.5	1.5		
3	99.0	1.0		

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-02-12-08** **Date: 14-02-18**
Customer	:	Assistant Executive Engineer, Dasarahalli Sub division, BBMP, Bangalore.
Address	:	Dasarahalli Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at 1st, 2nd and 3rd cross Manjunatha nagara in ward no.14 Bagalagunte.
Agency	:	Technical Manager West, KRIDL, Project Implementation Unit, No.280, 59th cross, 17th 'C' main road, 3rd 'Y' Block, Rajajinagar, Bangalore-560010.
Customer Reference	:	BBMP/EE//DD/WO/84/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-02-18
Sample ID No	:	2018-02-12-08/01
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of test	:	12-02-18
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	72	72	1.4	98.6	90-100
9.5	698	770	15.4	84.6	70-88
4.75	799	1569	31.4	68.6	53-71
2.36	625	2194	43.9	56.1	42-58
1.18	501	2695	53.9	46.1	34-48
0.6	511	3206	64.1	35.9	26-38
0.3	602	3808	76.2	23.8	18-28
0.15	502	4310	86.2	13.8	12-20
0.075	420	4730	94.6	5.4	4-10
PAN	270	5000	100	0.0	0

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2018-02-12-08** **Date: 15-02-18**
Customer	:	Assistant Executive Engineer, Dasarahalli Sub division, BBMP, Bangalore.
Address	:	Dasarahalli Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at 1st, 2nd and 3rd cross Manjunatha nagara in ward no.14 Bagalagunte.
Agency	:	Technical Manager West, KRIDL, Project Implementation Unit, No.280, 59th cross, 17th 'C' main road, 3rd 'Y' Block, Rajajinagar, Bangalore-560010.
Customer Reference	:	BBMP/EE//DD/WO/84/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	12-02-18
Sample ID No	:	2018-02-12-08/01
Type of Mix	:	BC (Bituminous Concrete)
Date of test	:	12-02-18

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	10.9	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.4		
Strength	Aggregate Impact Value	22.9	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.62	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.18	Maximum 2%	IS:2386 Part III

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2018-02-06-08** **Date: 08-02-18**
Customer	:	Assistant Executive Engineer, Dasarahalli Sub division, BBMP, Bangalore.
Address	:	Dasarnhalli Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at 1st, 2nd and 3rd cross Manjunatha nagara in ward no.14 Bagalagunte.
Agency	:	Technical Manager West, KRIDL, Project Implementation Unit, No.280, 59th cross, 17th 'C' main road, 3rd 'Y' Block, Rajajinagar, Bangalore-560010.
Customer Reference	:	BBMP/EE//DD/WO/84/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-02-18
Sample ID No	:	2018-02-06-08/01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	06-02-18
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	212	212	1.9	98.1	95-100
22.4	2398	2610	23.7	76.3	60-80
11.2	3072	5682	51.7	48.3	40-60
4.75	2197	7879	71.6	28.4	25-40
2.36	1446	9325	84.8	15.2	15-30
0.6	532	9857	89.6	10.4	8-22
0.075	822	10679	97.1	2.9	0-5

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2018-02-06-08** **Date: 08-02-18**
Customer	:	Assistant Executive Engineer, Dasarahalli Sub division, BBMP, Bangalore.
Address	:	Dasarahalli Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads and drains at 1st, 2nd and 3rd cross Manjunatha nagara in ward no.14 Bagalagunte.
Agency	:	Technical Manager West, KRIDL, Project Implementation Unit, No.280, 59th cross, 17th 'C' main road, 3rd 'Y' Block, Rajajinagar, Bangalore-560010.
Customer Reference	:	BBMP/EE//DD/WO/84/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-02-18
Sample ID No	:	2018-02-06-08/01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	06-02-18

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	11.1%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	11.8%	
Combined Flakiness and Elongation Index for WMM	22.9%	

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